

**VARIATION OF NEURAL-STIMULATION PARAMETERS****ABSTRACT OF THE INVENTION**

Techniques for varying stimulus parameters used in neural stimulation to improve therapy efficacy, minimize energy consumption, minimize undesired side effects, and minimize loss of therapeutic effectiveness due to physiologic tolerance to stimulation. Neural stimulation is provided having a stimulation amplitude, a stimulation frequency, a stimulation pulse duration, an electrode-firing pattern, and a set of electrode-firing-polarity conditions. At least one of the stimulation parameters is pseudo-randomly varied. A second stimulation parameter is changed based upon having pseudo-randomly varied the first stimulation parameter and based upon a predetermined relationship specifying how changes in the first parameter affect desirable values for the second parameter.

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